Contributions to Clinical Surgery:

BY

OLIVER PEMBERTON, Esq., Surgeon to the General Hospital,
and Demonstrator of Anatomy in the Queen's
College, Birmingham.

NO. II.

AMPUTATION AT THE ANKLE-JOINT.

THE operation of tibio-tarsal amputation, as introduced by Mr. Syme, has been frequently brought before the notice of the profession during the past twelve years. It has become, mainly in consequence of the admirable success which has attended its performance in the hands of that distinguished surgeon, in many places an established mode of treatment applicable to certain diseased conditions of the tarsal bones, for the relief of which amputation of the leg used to be performed.

Notwithstanding the evidence that is already published of its value, there is not yet that general recognition of its desirability for various classes of patients, which its advantages appear to me to demand. Having, in repeated instances, adopted this mode of amputation myself, and having also witnessed its effects where it has been performed by others, I am enabled to place on record the results of my observations of its utility.

So various are the modifications that have been recommended to accomplish amputation at the ankle-joint since Mr. Syme's method was first propounded, that it is necessary to dwell briefly on this part of the question. One point, at the outset, is beyond dispute—the point, indeed, which established the claim of Baudens and Syme to their position, in regard to being the originators of the most successful operation of modern surgery—the necessity of the removal of the malleolar projections. All operators are, I believe, of one mind in this regard. With this procedure, in common with the French surgeon, Mr. Syme, in addition, insisted on the value of the natural pad of the heel constituting *undivided* in the stump the medium of pressure in preference to any other covering from the neighbourhood of the joint.

Subsequent experience has in no respect diminished Mr. Syme's conviction of the value of this improvement: and the only alteration he has suggested is in regard to the shortening of the flap—as inconvenience was found to arise from cutting the sole of the foot too far forwards, the resulting flap being difficult of removal, and tedious in uniting. The modifications proposed range themselves under two heads:

1. As to the source from whence the covering of the stump is to be derived.

2. As to the propriety of retaining the astragalus,* should it happen to be sound, or a portion of the os calcis† within the flap.

I shall confine my remarks in this contribution to the first; since having no experience myself of the second, I am unable to speak of its value. The various opinions as to direction of incisions, order of dissection, and separation by the saw, so long as they eventuate in the desired object of obtaining a covering for the stump from the natural pad of the heel, do not appear to me to be of the first importance, inasmuch as every surgeon will select that mode which he can with the greatest facility execute.

Velpeau's plan obtained a covering from the dorsum of the foot and from the skin above the heel. This was effected by two semilunar incisions, which met at about an inch below the malleoli. The line of union was transverse, and exposed to direct pressure.

Baudens' posterior flap terminated at the insertion of the tendo Achillis, so that the anterior one taken from the dorsum of the foot really constituted the medium of pressure.

Finally, some operators endeavoured to cover the ends of the tibia and fibula with integument derived from lateral flaps and from the sides of the foot below the malleoli.

The late Mr. Mackenzie (*Edinburgh Monthly Journal*, August 1849) proposed and carried out a method which appears to have advantages under certain circumstances. This consisted in obtaining a large internal flap by means of an incision of semilunar shape, commencing behind opposite the articulation, and terminating in front on the dorsum of the foot, about an inch in front of the inner malleolus; the connecting the extremities of this incision completed a second flap, very small, semilunar in shape, with the convexity downwards from the outer side of the foot, about an inch below the external malleolus. The advantage of this proceeding is, that it is applicable to certain cases, in which the integuments on the outer side of the foot are in such a state of disease as to unfit them for the formation of a healthy flap. The line of union is on the fibular side, so that the face of the stump—i.e., the natural pad of the heel—is as much the medium of pressure as in Mr. Syme's method.

I can certainly picture a case in which this proceeding might be advisable, and should not hesitate to adopt it in preference to supra-malleolar amputation: but experience has altogether pronounced against the selection of lateral or antero-posterior flaps when the natural pad of the heel can be obtained. The truth of this would indeed appear to be evident even to those surgeons who still adhere to the former methods; for they do not dispute the desirability of such a flap, if it can be obtained; but insist on the chances of sloughing, bagging of matter, and other complications, as so likely to ensue, as to warrant them in still maintaining their predilections.

The points, therefore, which I shall especially dwell upon, in connexion with this operation, are amongst those which seem to me to yet require additional confirmation, and for this purpose I shall adduce the details of particular cases. The points are—

1. That the prospects of a sloughing flap are really distant so long as the ordinary precautions laid down for guidance are followed.

2. That the bagging of matter, either in the heel, or in the neighbourhood of the joint, need not be feared, so long as the dressing of the stump is conducted in a suitable manner.

3. That the pad of the heel retains its thickness after being subjected to pressure, as the medium of support in the stump, and does not become thin and wasted, as in the case of many other amputations.

4. That the position of the cicatrix remains unaltered above the seat of pressure, and that it is not affected by the action of the tendo Achillis.

5. That neither the cicatrix nor the stump are liable, *ceteris paribus*, to subsequent ulceration, and that exfoliation from the cut extremities of the bones is not to be anticipated.

6. That it may be performed equally in the adult as in the tender infant; in cases of recent injury as well as in cases of chronic disease.

7. That even where the tibio-tarsal joint is the seat of very considerable disease, it may yet be performed with success.

In every instance, save one, the following method has been adopted in this hospital. A semilunar incision is made across the front of the joint, commencing at the centre of the extremity of either the external or internal malleolus, according as the right or left foot is operated on, and terminating at a corresponding point on the opposite side, is first made. The convexity of this incision is directed to the toes, and it should only divide the integuments. From the malleolus, at which the knife terminated its course, a second incision is carried downwards deeply

* Two cases in which the astragalus was left. Mr. Simon. (*Lancet*, 1854, vol. i, p. 100.)

† Pirogoff's operation. (*Lancet*, 1855, vol. i, p. 484.)

and forcibly through everything to the bone, across the sole of the foot, in a direction exactly in a line corresponding to the malleolar projections, and terminating at the commencement of the first. The foot being firmly grasped by the left hand, a sweep of the knife divides the remaining tissues, including the external, anterior, and internal ligaments of the ankle-joint, and exposes the articular surface of the astragalus. The flap is now dissected from the os calcis from above downwards, attention being directed to separate the soft parts from the bone in the middle line first, until the insertion of the tendo Achillis is fairly divided. This accomplished, the lateral attachments to the os calcis are easily separated, a strong grasp of the foot enabling the operator unaided to give the requisite degree of tension to the parts he is dividing in any direction at pleasure. During all this, the edge of the knife must be directed so as to cut on the bone, and the hollow of the calcaneum on the inner side must be borne in mind in reference to the preservation of the posterior tibial artery. Lastly, one turn of the knife is carried round the extremities of the tibia and fibula, and their malleolar projections are sawn off sufficiently high to include the removal of the intermediate cartilaginous surface.

In a recent case, in which I performed this operation, I changed the order and direction in which I had been in the habit of detaching the flap from the os calcis, following more particularly the method which I believe Mr. Syme himself adopts—namely, that of dissecting it from below upwards.

I certainly found no difficulty in pursuing this method; but I cannot say that I found any additional facility, so as to lead me to adopt it again. An awkwardness appearing to arise from having to turn the patient partially on the side, in order to twist the sole of the foot uppermost.

I prefer the knife represented in the woodcut to any other for this operation.

It will be noticed that in the method of operating described, the foot has been disarticulated before the malleolar projections have been removed. Mr. Birkett (*Lancet*, 1854, vol. ii, p. 456), after having completed the dissection of his flaps, applies the saw to the extremities of the tibia and fibula, and removes them, together with the thin slice of the articular extremity of the tibia, without opening the cavity of the joint. This modification appears to me to be particularly applicable to those cases in which there is reason to suspect the existence of disease in the extremity of the tibia. Two sutures should be inserted to retain the flaps in contact; a single strip of adhesive plaster, a piece of wetted lint, and a light roller, completing the dressings.

On the second day, I am in the habit of removing the sutures and the dressings, in order to allay the swelling, which always arises in the lightest dressed stumps; and which, if allowed to continue unrelieved for even another day, is certain to produce irritation. Subsequently, so far as the stump is concerned, there is but one point to keep in view, in order to avoid unpleasant complications. Let there be no pressure applied to the flap. Let it simply be retained in apposition by the gentlest means possible. This can easily be done, as the flap is most tractable, and not at all like the unyielding mass that is necessarily obtained in a Chopart's amputation.

By attending to this, all danger of bagging of matter, so far as my experience has taught me, will be avoided, and the healing process will go on with wonderful rapidity. I have never once had occasion to relieve any collection of matter in the pad of the heel, or indeed in any other part of a stump formed in this operation. In no instance have I obtained or desired "union by first intention". Care has, however, been taken to obtain an accurate apposition of flaps in the first instance without straining, so as to admit of a free escape of discharge; at the same time, that every

endeavour must be made to prevent the least gaping of the wound, in order that the line of granular union may not exceed the width of a few lines.

[To be continued.]

Reviews and Notices.

DISEASES OF THE HEART, THEIR PATHOLOGY, DIAGNOSIS, AND TREATMENT. By W. O. MARKHAM, M.D., Assistant-Physician to St. Mary's Hospital, etc. pp. 346. London: John Churchill. 1856.

It has been our thought for some years, and it is so increasingly, that he does good service to science who, though not gifted with the highest endowments or greatest opportunities, yet sets himself to the contemplation and study of any subject with an honest purpose and attentive mind. He may not make great discoveries; he may not add much to the ground already won; but he tills and cultivates the demesne, he ascertains its boundaries more exactly, and he makes it more fruit-bearing.

This thought has been again raised in our mind by the perusal of Dr. MARKHAM's book. It is the fruit of careful, accurate, and, we have a right to say, keen observation of disease in the living subject: it embodies and examines the opinions of the best authorities, domestic and foreign. The good faith and truthfulness of the writer are as clear as the type of the printing—which is perfect. He writes as a man impatient of anything that bears not the clear stamp of truth, and has perhaps by this very feeling, honourable as it is, been carried rather beyond the limits of what was needful. At page 18 of his preface, he expresses his belief "that more faith is placed by us in the power and efficacy of therapeutical agents as regulating and controlling acute diseases, than reason warrants; and that the exact amount and degree of influence exerted over such diseases by remedies are, in very many cases, not readily demonstrable." At p. 17, speaking of the treatment of acute cardiac diseases, he says, "that its actual influence over the disease has yet to be demonstrated, may be said without injury or blame to our art." Again, at p. 11, "We may, I think, very fairly come to the conclusion that no one can rightly speak of having firm convictions in the efficacy of any method of treatment yet proposed." Now, to this we must say that, if it apply to a blind routinism, it is scarcely needed, for very few practitioners, we conceive, would have any expectation of curing *all cases* of acute cardiac disease by any treatment they could employ: on the other hand, if it apply to rational medicine, we think it would be opposed by a very general *consensus*, as there are but few practitioners whose own experience does not satisfy them that well directed treatment is in the majority of instances of every importance. The passages quoted, to our mind, are the language of a man who does not duly estimate the position of medical science, and who grieves at not finding in it that which he would have. He would have medicine an exact science, as mathematics or physics; he cannot accept any conclusion which is not established on quite irrefragable evidence. His mind is disturbed by the failures that he witnesses, and by the discordant opinions that exist; and he does not give sufficient weight to the mass of testimony on the other side, because it is not quite unexceptionable. We do not at all object to a certain infusion of this sceptical spirit; it is quite desirable that we should scrutinise our proceedings as carefully as possible, and not lay flattering unctions to our minds to which we have no right. But we think that, in his preface, Dr. Markham has carried his doubting too far. We say in his *preface*, for all through the work itself we meet with most sound and judicious precepts for treatment, which prove the author no mean craftsman in the use of the tools he somewhat mistrusts. We will quote one passage, which has our very special approval, relative to the management of pericarditis.